



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,311	05/31/2001	David Kar Ling Lo	13004US01	4548

7590 06/24/2003

Robert W. Fieseler  
McAndrews, Held & Malloy, Ltd.  
500 West Madison Street, 34th Floor  
Chicago, IL 60661

EXAMINER

TALBOT, BRIAN K

ART UNIT

PAPER NUMBER

1762

8

DATE MAILED: 06/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/872,311

Applicant(s) **SH**

LO ET AL.

Examiner

Brian K Talbot

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 April 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other:

Art Unit: 1762

1. The amendment filed 4/22/03 has been considered and entered. Claim 12 has been canceled. Claims 1-11 and 13-20 remain in the application.
2. It is noted that the amended claims 1 and 16 (pg. 2) are not the same as the mark-up version (pg. 9). The claims (pg. 2) recite an "electrode" and an "electrocatalyst" while the claims (pg. 9) recite a "substrate" and a "loading material". Correction is required.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

4. Claims 1-4, 6-11 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al. (5,935,643) or Breault et al. (5,732,463) in combination with JP-201-38268 or Maricle et al. (4,849,253).

Song et al. (5,935,643) and Breault et al. (5,732,463) teach method of manufacturing electrode for fuel cells whereby a coating is applied to a porous substrate, dried, rolled and sintered to form the electrode. The rollers are placed having a gap distance and a protecting film is situated between the electrode and the roller to avoid sticking during compaction.

Song et al. (5,935,643) or Breault et al. (5,732,463) fail to teach that the process is continuous.

Art Unit: 1762

It is the Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation that the above processes would produce the expected results in either a continuous or non-continuous process.

Song et al. (5,935,643) and Breault et al. (5,732,463) fail to teach the coating having a liquid component during the rolling/compacting step.

JP-201-38268 teaches manufacturing a fuel cell electrode whereby a liquid mixture is applied to a heated roller and then pressing the liquid mixture to form the electrode. While the reference teaches a "heated" roller, the reference does not "completely dry" the coating prior to pressing.

Maricle et al. (4,849,253) teaches method of making electrochemical cell electrode whereby the catalyst layer is applied and compacted prior to being sintered to form the electrode (Abstract and Fig. 1).

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified either Song et al. (5,935,643) or Breault et al. (5,732,463) process by not completely drying the coating prior to pressing/compacting as evidenced by either JP-201-38268 or Maricle et al. (4,849,253) with the expectation of achieving similar success.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al. (5,935,643) or Breault et al. (5,732,463) in combination with JP-201-38268 or Maricle et al. (4,849,253) further in combination with Campbell et al. (5,863,673).

Art Unit: 1762

Song et al. (5,935,643) or Breault et al. (5,732,463) in combination with JP-201-38268 or Maricle et al. (4,849,253) fail to teach pre-treating the substrate with a hydrophobic polymer before applying the coating material.

Campbell et al. (5,863,673) teaches forming a porous electrode for a fuel cell whereby a hydrophobic coating is applied prior to the filling step. (col. 3, lines 64-67)

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified Song et al. (5,935,643) or Breault et al. (5,732,463) in combination with JP-201-38268 or Maricle et al. (4,849,253) process with a hydrophobic coating as evidenced by Campbell et al. (5,863,673) with the expectation of achieving similar results.

#### ***Response to Amendment***

5. Applicant's arguments filed 4/22/03 have been fully considered but they are not persuasive.

Applicant argued that the prior art failed to teach pressing/compacting the fuel cell electrode coating while still "partially" wet.

JP-201-38268 and Maricle et al. (4,849,253) both teach this limitation.

Art Unit: 1762

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

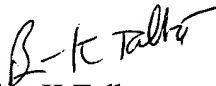
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K Talbot whose telephone number is (703) 305-3775. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Art Unit: 1762

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3775.

  
Brian K Talbot  
Primary Examiner  
Art Unit 1762

BKT  
June 20, 2003